Creating Ecologically Significant Central Valley Floodplains

Jeff J Opperman

Public Comments

No public comments were received for this proposal.

Initial Selection Panel Review

Proposal Title

#0198: Creating Ecologically Significant Central Valley Floodplains

Funding:

Do not fund

Initial Selection Panel (Primary) Review

Topic Areas

- Environmental Influences On Key Species And Ecosystems
- Implications Of Future Change On Regional Hydrology, Water Operations, And Environmental Processes
- Water Management Models For Prediction, Optimization, And Strategic Assessments
- Assessment And Monitoring
- Salmonid−related Projects

Please describe the relevance and strategic importance of this proposal in the context of this PSP. How does the proposal address the topic areas identified above? What are the broader CALFED Goals this proposal may meet that are not accounted for in these specific topic areas?

The proposal seeks to expand knowledge of floods in the Central Valley, with an emphasis on the Sacramento Valley. Much of the planned work would attempt to the better define the ecological function of floods with an apparent emphasis on overbank flows and the resultant habitat created in floodplains for salmonids and Sacramento Splittail. The aim is to improve planning for restoration for key life cycle stages of sensitive fishes, a focus of the PSP. In addition such work could help plan restoration and management of riparian floodplain forests and other wetlands and the vertebrate wildlife which depend on these habitats, which are broader CALFED ERP goals.

The budgets of proposals submitted in response to this PSP are larger, on average, than those submitted to CALFED in previous years. The Science Program is committed to getting as much science per dollar as is reasonably possible. With this commitment in mind, can the proposed budget be streamlined? If so, please recommend and clearly justify a new budget total in the space provided.

See below

Evaluation Summary And Rating.

Provide a brief explanation of your summary rating and any additional comments you feel are pertinent.

This is not recommended for funding at this time. It is not clear how the current proposal is integrated with the previously funded CALFED grants – the "Floodplain Working Group" and the preparation of the CALFED Flooplain White Paper. The previously funded work provides for similar tasks as in the current proposal, including literature review, workshops, development of conceptual models, and development of floodplain mapping classification and mapping methodologies. The current proposallacked details on how to quantify ecological functions, how the model would be validated, or how its predictions would be tested.

Selection Panel (Discussion) Review

fund this amount: $**0**
note:
do not fund

This project proposes to develop conceptual models for how you would define ecologically significant floodplains. These ecological models would be used with hydrodynamic models to clarify and map floodplains, and then three case studies would be examined for restoration potential. It would be valuable information, and the authors made a good case that the amount of restorable floodplain may be higher than we thought, and that this proposal would identify and prioritize those. Ideally, work done under this proposal would help direct us to

the best opportunities to find the best floodplain locations, and direct a restoration strategy. However, the panel expressed reservations about the scope of the work, and its potential utility.

CALFED has separately funded a floodplain work group, and floodplain white paper. It is not clear how the proposed work integrates with that previous work. The Selection Panel concurs with the concerns raised by the Technical Synthesis Panel about the lack of research identified in the proposal that would validate the model to be developed. In addition, there was a concern that the proposal does not identify metrics that would allow the quantification of floodplain functionality in the terms of measures such as native fish use, zooplankton productivity, etc. Panel members also were not clear on the inclusion of a fish biologist in the proposal, given there was no fish work in the proposal.

Moving towards a broader landscape scale view of this subject would be valuable, but it is not clear that this would make a contribution in this direction that is not duplicative of other efforts.

Panel Ranking: Do not fund.

Technical Synthesis Panel Review

Proposal Title

#0198: Creating Ecologically Significant Central Valley Floodplains

Final Panel Rating
superior

Technical Synthesis Panel (Primary) Review

TSP Primary Reviewer's Evaluation Summary And Rating:

This is an exciting and ambitious project that seeks to better define ecologically functional floodplains, characterize the hydrologic parameters that can be used to measure floods (duration, timing, depth, frequency, etc.); represent indicator floods and functional floodplains; map and quantify various floodplains, and identify areas for increasing functional floodplains; and apply floodplain models and designs for case study sites to optimize opportunities to achieve ecological benefits from floodplains. The authors are a highly productive and interdisciplinary team that will develop indicators that managers will be able to use. They are making excellent use of the expertise availabe in the Floodplain Working Group. The problem is one that is central to CALFED operations. The authors have conducted extensive, ongoing, and relevant research on these floodplains showing how aspects such as residence time of water on floodplain influence food web productivity. This previous work has been site specific, and the proposed research is a logical and necessary extension to the landscape scale. The choice of reaches to study is well justified with a clear rationale for each type and a clear statement of its likely application to management decisions in the larger Calfed region. The investigators are being realistic and noting that peer−reviewed publications will be produced, but not in time

frame of this project. The track record of the individuals involved would certainly show that excellent peer−reviewed publications will result from this research. This was by far the best of all the proposals I reviewed for this program.

Additional Comments:

Reviewers rated the proposal as very good (reviewer 1) and excellent (reviewer 2). Reviewer 1 noted: " the conceptual model (ecological and erosive flood value) is simple, presented clearly, and provides the appropriate foundation for the investigation." "The likelihood of success appears to be very high." This reviewer concludes: "A leading strength of this proposal is its link to CALFED management priorities. The team members appear to be emphasizing a product of direct contribution to management rather than a scientific agenda that has indirect value to CALFED goals. Finally, the project is relatively straightforward and simple but of high utility." Reviewer 2 noted: "All aspects that the authors lay out are critical to understanding floodplain ecosystems; there is not a portion of this project that is not important." In describing the approach being used, this reviewer stated: "The combination of ecological indicators, hydraulic modeling, and optimization really nails the scope of issues that arise in looking at floodplains." "The use of hydraulic modeling seems appropriate for the purposes of the study, and the use of optimization means that it will be realistic." This reviewer concluded that "The combination of hydrologists and ecologists, modelers and field work, academic research and consulting firms, is not just novel, but it is necessary to advance the science and practice of environmental restoration. The outcomes from this project will inform water management decision−making in California, and likely other regions of the country. This is an important project."

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Technical Synthesis Panel (Discussion) Review

TSP Observations, Findings And Recommendations:

Creating ecologically significant Central Valley floodplains

This research will produce a tool that will allow managers to prioritize where to do restoration work. The applicants have assembled a very good interdisciplinary team. The authors have a strong track record of research productivity in these systems. The reviewers provided excellent to very good rankings. The study and its products, in particular the floodplain model, will be very relevant to CALFED's objectives. The proposed research is very comprehensive and is of considerable value to CALFED because it will provide a tool to managers to identify areas that are prime for restoration.

The panel expressed some concern regarding the lack of research identified in the proposal that would validate the model that would be developed. The proposal does not identify metrics that would allow the quantification of floodplain functionality in terms of measures such as native fish use or zooplankton productivity, etc. Also, the model will generate predictions, but how will those predictions be tested? One strength of the proposal was its recognition of the difference between ecological floods and erosive floods.

Final Ranking: Superior

Technical Review #1

proposal title: Creating Ecologically Significant Central Valley Floodplains

Review Form

Goals

Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the idea timely and important?

Comments	**The goals and objectives are clearly stated, as well as the fundamental research questions that the team wishes to address. Relevant hypotheses are provided later in the proposal. The authors are very consistent throughout the proposal in stating and building upon the objectives. While the research idea is not groundbreaking with respect to advancing the state of science, it seems both timely and important with respect to CALFED goals and integrated, improved management of the Bay−Delta watershed.**
Rating	**very good**

Justification

Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full−scale implementation project justified?

Comments	**The authors do indicate how their research builds upon previous work, with particular emphasis on past Bay−Delta watershed studies, including their own. The conceptual model (ecological and erosive flood value) is simple, presented clearly, and does provide the appropriate foundation for the**

	investigation. The broad spatial scale and integrative nature of the study warrants the level of research proposed.
Rating	**excellent**

Approach

Is the approach well designed and appropriate for meeting the objectives of the project? Is the approach feasible? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology, or approaches? Will the information ultimately be useful to decision makers?

Comments	**The objectives of this project can be met by the relatively straightforward research design presented. The approach is feasible and results will be particularly beneficial to scientists and managers working to understand and improve river−floodplain and watershed dynamics in the Bay−Delta area. While the fundamental approach is not novel, it is solidly based on good science and the application of this design to the Bay−Delta area will provide novel, practical information for local and regional professionals.**
Rating	**very good**

Feasibility

Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives and within the grasp of authors?

Comments	**The approach is well documented to the extent possible given page limits (more detail would be desirable but is not feasible given limited proposal space.) Since the authors have a clear feasible proposal, are continuing to build upon past research in the Bay−Delta area, and show a history of successful outcomes (e.g. publications), the likelihood of success appears to be very high. The scale of the project is appropriate for project objectives**

	(watershed scale, with nested case studies) and appears to be consistent with the expertise of the authors and their geographic areas of interest.
Rating	**excellent**

Monitoring

If applicable, is monitoring appropriately designed (pre−post comparisons; treatment−control comparisons)? Are there plans to interpret monitoring data or otherwise develop information?

Comments	**Monitoring is not emphasized in this proposal.**
Rating	**not applicable**

Products

Are products of value likely from the project? Are contributions to larger data management systems relevant and considered? Are interpretive (or interpretable) outcomes likely from the project?

Comments	**The process−based mapping and modeling of flooplain dynamics will provide valuable products such as: (1) GIS layers presenting aerial extent and frequencies of various floods and floodplains important to Central Valley aquatic ecosystems, and (2) development of models which can be used by river managers for cost−benefit analysis of the best areas for ecosystem restoration and the best strategies for ecosystem restoration. Authors note that they are drawing on available hydrodynamic models (e.g. UNET models) and improving them by calibrating the models to better represent the hydraulic conditions that drive floodplain ecosystem and enhancing current optimization models to include restoration objectives. Finally, the authors indicate how they will disseminate results, but it is unclear if their improved models will be made available to regional managers.**
Rating	

	good

Additional Comments

Comments

Capabilities

What is the track record of authors in terms of past performance? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

Comments	**The project leaders appear to be well-qualified to lead this study, with appropriate expertise and good records of publication. I am particularly impressed with the efforts to have the team meet six times in the first year to ensure a well-integrated, consistent effort. This should benefit project implementation. The team appears to have access to the baseline data and models that will be enhanced for this project.**
Rating	**very good**

Budget

Is the budget reasonable and adequate for the work proposed?

Comments	**The budget seems to be appropriate given a three year study with multiple team members. Given their past experience implementing other CALFED grants and regional projects, they are highly likely to have a good understanding of the funding needed to successfully implement a project.**
Rating	**very good**

Overall

Provide a brief explanation of your summary rating.

Comments	**A leading strength of this proposal is its link to CALFED management priorities. The team members appear to be emphasizing a product of direct contribution to management, rather than a scientific agenda that has indirect value to CALFED goals. Finally, the project is relatively straightforward and simple, but of high utility. The proposal was well written and overall I would give the authors a rating of very good.**
Rating	**very good**

Technical Review #2

proposal title: Creating Ecologically Significant Central Valley Floodplains

Review Form

Goals

Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the idea timely and important?

Comments	**The goals of this project are fundamentally critical, both to California and to the US in general. Floodplain ecosystems have been fundamentally altered, and their restoration is critical to aquatic ecosystems. Addressing the combination of ecology and hydrology of floodplain ecosystems, particularly within California, brings up issues of restoration, water distribution, climate change, and the list goes on.** **As importantly, the industry of river restoration is developing in the United States, but the majority of work is confined to the channel proper. This project would increase the scope of river restoration to the floodplain, and thus would increase our understanding of this coupling between science and an emerging industry.**
Rating	**excellent**

Justification

Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full−scale implementation project justified?

Comments	**All aspects that the authors lay out are critical to understanding floodplain ecosystems; there is not a portion of this project that is not important.**
Rating	**excellent**

Approach

Is the approach well designed and appropriate for meeting the objectives of the project? Is the approach feasible? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology, or approaches? Will the information ultimately be useful to decision makers?

Comments	**Of all the aspects of the project that I like, the approach is the highlight. The combination of ecological indicators, hydraulic modeling, and optimization really nails the scope of issues that arise in looking at floodplains. I think that the approach of forming a workshop in order to get a breadth of input on ecological indicators is novel, and a very good way to approach refining the conceptual model. The use of hydraulic modeling seems appropriate for the purposes of the study, and the use of optimization means that it will be realistic.** **I will add that while 'indicators' are not always appreciated in academic research, they are absolutely key to management and consulting. Thus, using an indicator approach, coupled with their more fundamental approaches (e.g., modeling) means that the results will be rigorous, but able to be extended to other situations easily.** **My only concern with the approach section is that there is not a strong remote sensing or GIS-based modeling component. Given the physical scale of the project, I would think that the authors should strongly consider GIS-based modeling.**

	However, any concerns I have of this aspect are balanced and overrun by the inclusion of the optimization component of the project. It is the combination of approaches that really makes this project exciting.
Rating	**excellent**

Feasibility

Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives and within the grasp of authors?

Comments	**The likelihood of this project being completed and being useful is essentially guaranteed. The main reason for this is that the project team appears to be intimately familiar with the system, and with the people and organizations relevant to the system and the project. The pilot studies already underway add another dimension to the feasibility. The personnel certainly have the ability to do the work in a timely manner, and to do it extremely well.**
Rating	**excellent**

Monitoring

If applicable, is monitoring appropriately designed (pre−post comparisons; treatment−control comparisons)? Are there plans to interpret monitoring data or otherwise develop information?

Comments	**I am not as certain about the role of monitoring within this proposal, but the kind of data and analysis that they are proposing lends itself to testing and monitoring fairly easily via remote sensing and image analysis.**
Rating	**good**

Products

Are products of value likely from the project? Are contributions to larger data management systems relevant and considered? Are interpretive (or interpretable) outcomes likely from the project?

Comments	**The products from this project will be important from several fronts. First, the inventory of floodplain functions and services will be fundamentally important to CBDA. Second, the model that they develop, coupled with the optimization approach, will provide CBDA an actually useful tool in making decisions. That is, this proposed work will not end up as simply a few reports and publications; this project will result in useful information for management decisions, and the data from which to base those decisions. The actual ecological design of floodplain restoration projects is also a tangible outcome, that is particularly feasible because of the coupling of academic researchers with a design consulting firm (PWA).** **There will also be two broad, more scientific products. First, the collaboration at the interface of ecology and floodplain hydrology, and the development of indicators will be a much needed contribution to the field. Second, the interaction of engineers and ecologists will lead to some important contributions of how to link eco and hydro research, particularly given the caliber of researchers on the team.**
Rating	**excellent**

Additional Comments

Comments

Capabilities

What is the track record of authors in terms of past performance? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

Comments	**The track record of the authors is outstanding. I am particularly excited to see the collaboration of academic researchers with a private consulting firm. Worth noting is the role of PWA (consulting firm) in not just restoration channel design, but also in pushing the science of restoration channel design. I have profound respect for the work that PWA does and for their role in developing the science of restoration practice, and so their contribution to this project is a big plus for me. Plus, PWA gives a reality check to the pure research and increases the likelihood that the research will be transferable to consulting and management in the future.**
Rating	**excellent**

Budget

Is the budget reasonable and adequate for the work proposed?

Comments	**The budget seems appropriate for the proposed work. I think that maximizing the role of a post-doc for project logistics is a realistic route to go for overall management of the project.**
Rating	**very good**

Overall

Provide a brief explanation of your summary rating.

Comments	**I not only encourage the panel to fund this project, but I am genuinely excited about the results of the project. The combination of hydrologists and ecologists, modelers and field work, academic research and consulting firms, is not just novel, but it is necessary to advance the science and practice of environmental restoration. The outcomes from this project will inform water management decision-making in California, and likely other regions of the**

	country. This is an important project.
Rating	excellent